

2016 STANDARDS PROJECT

High Performance Walls

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Agenda

- Background
- 2016 Prescriptive Proposal
- Alternative Frame Walls
- QII: Quality of Insulation Installation
- Alternative Systems
- New 2013 U-factor Calculator

2016 Prescriptive Proposal

- 2x6 framing with exterior sheathing
 - R23 cavity insulation
 - R6 continuous sheathing
- Prescriptive Compliance based on design U-factor

Alternative Frame Walls

Wall	Framing	Spacing	Cavity	Sheathing	U	U% of 2013
2013	2x4	16" O. C.	R15	R4	0.065	
A	2x4	16" O. C.	R15	R5	0.061	94%
B	2x4	16" O. C.	R15	R6	0.057	88%
C	2x6	16" O. C.	R21	R4	0.051	78%
D	2x6	16" O. C.	R21	R5	0.048	74%
E	2x6	16" O. C.	R21	R6	0.046	71%
F	2x6	24" O. C.	R21	R4	0.050	77%
G	2x6	24" O. C.	R21	R5	0.047	72%
H	2x6	24" O. C.	R21	R6	0.045	69%
I	2x6	AWF	R21	R4	0.047	72%
J	2x6	AWF	R21	R5	0.045	69%
K	2x6	AWF	R21	R6	0.042	65%
L	2x6	16" O. C.	R23	R4	0.049	75%
M	2x6	16" O. C.	R23	R5	0.047	72%
N	2x6	16" O. C.	R23	R6	0.044	68%
O	2x6	24" O. C.	R23	R4	0.048	74%
P	2x6	24" O. C.	R23	R5	0.045	69%
Q	2x6	24" O. C.	R23	R6	0.043	66%
R	2x6	AWF	R23	R4	0.045	69%
S	2x6	AWF	R23	R5	0.043	66%
T	2x6	AWF	R23	R6	0.041	63%

QII: Insulation Installation Quality

- Insulation conductivity for Performance
Compliance depends on post-construction HERS
inspection
 - Nominal R-value if inspected
 - 90% of R-value if not inspected
 - Applies to cavity and ceiling insulation, but not sheathing
- Does not affect Design U-factor for Prescriptive
Compliance

Alternative Systems

- SIPs: Structural Insulated Panels
- Sprayed Insulation
- Staggered Studs



New 2013 U-factor Calculator

- Built into the CBECC-Res software

Construction Type: **Wood Framed Wall**

Construction Layers (inside to outside)

	Cavity Path	Frame Path
Inside Finish:	Gypsum Board	Gypsum Board
Sheathing / Insulation:	- no sheathing/insul. -	- no sheathing/insul. -
Cavity / Frame:	R 15	2x4 @ 16 in. O.C.
Sheathing / Insulation:	- no sheathing/insul. -	- no sheathing/insul. -
Exterior Finish:	R4 Synthetic Stucco	R4 Synthetic Stucco

Non-Standard Spray Foam in Cavity

Path #1: 0.75 20.31 20.30
Path #2: 0.25 8.88 8.88

Winter Design U-value: **0.065** Btu/h·ft²·°F (meets max code 0.065 U-value (0.065))